

## **REMARKS**

The Examiner has requested that Applicants update the application information on page 1, lines 28-31 in order to reflect any changes in the status of the application. Applicants respectfully submit that there are no changes in the status of the application at the present time.

Claims 1-5 and 14-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Forslow (U. S. Patent No. 6,608,832) in view of Rocanova (U. S. Patent No. 6,522,658).

The Examiner states regarding claims 1 and 14, Forslow discloses a mobile telecommunications system and method, comprising: at least one user terminal (col. 6, lines 48-54); and at least one gateway bidirectionally coupled to a data communications network (col. 6, lines 60-64); said user terminal comprising a controller responsive to applications for selecting individual ones of a plurality of Quality of Service (QoS) modes for servicing different application requirements (col. 5, lines 41-60 and col. 6, lines 48-64).

The Examiner admits that Forslow does not expressly disclose that the mobile telecommunications system is mobile satellite telecommunications system which includes at least one satellite in earth orbit; however, Forslow does disclose that the invention can be used in a variety of mobile telecommunication systems, directing Applicants' attention to col. 8, lines 60-63. The Examiner submits that Rocanova teaches that it is important to discriminate and route packets based on QoS requirements in satellite-based communication systems since orbital designs must accommodate the need for short round trip times required for voice data, directing Applicants' attention to col. 1, lines 32-36. Thus, the Examiner concludes it would have been obvious to one of ordinary skill in the art at the time of the invention to have the mobile telecommunications system be a mobile satellite telecommunications system, which includes at least one satellite in earth orbit, since it is important to discriminate and route packets based on QoS requirements in satellite-based communication systems.

Applicants respectfully contend that in Forslow U.S. 6,608,832 there is disclosed "Applications running on a mobile station or an external network entity such as an Internet service provider may specify on an individual application flow basis a requested quality of service." At col. 6, lines 48-54 of Forslow there is disclosed "A significant advantage of the present invention is that applications running on a mobile station or on an external network entity such as an Internet service provider may specify on an individual application flow basis a requested quality of service, and with this information, select the type of bearer to be employed when transferring the application flow through the mobile communications

"network." Further, at col. 6, lines 60-64 there is disclosed "The mobile station and a mobile network gateway node each include a mapper for mapping individual application flows to one of the circuit-switched network and the packet-switched network bearers depending on the quality of service requested for an individual application flow." At col. 5, lines 41-60 there is a broad ranging discussion of an optimal type of mobile communications network transfer service – a circuit-switched transfer service or a packet-switched transfer service – is specified on an individual application flow basis. Further, at col. 6, lines 48-64, as previously recited, there may be a specification of a quality of service which can be selected at the application layer which is advantageous because the application has the best end-to-end perspective of the communication.

Applicants respectfully contend that it is not at all clear that at col. 6, lines 48-54, as recited above, there is seen, as the Examiner contends, a mobile telecommunications system and method comprising at least one user terminal since what is apparently described is applications running on a mobile station or on an external network entity such as a Internet service provider specifying a quality of service. Furthermore, at col. 6, lines 60-64, Applicants respectfully submit there is no indication either in the drawing of said reference or in the specification that said gateway is bidirectionally coupled to a data communication network as required in the instant claims. Further, as stated above, Applicants are at a loss to discern how at col. 5, lines 41-60 and col. 6, lines 48-64 there is disclosed a user terminal comprising a controller responsive to applications for selecting individual ones of a plurality of quality of service modes for servicing different application requirements as contended by the Examiner.

Applicants respectfully submit that it is not at all clear from the recited passages relied upon by the Examiner that a mobile station and a user terminal are equivalent since they are not stated to be therein and there is no indication as used in the reference that they are, but nevertheless, what is clearly described as recited above are applications running on a mobile station or on an external network entity such as an Internet service provider specifying a quality of service, not a user terminal comprising a controller responsive to applications for selecting individual ones of a plurality of quality of service modes for servicing different application requirements as required by the fourth element of claim 1, for example. Applicants respectfully contend that although the Examiner submits that in order for the gateway to map communications onto packet switched network bearers, the gateway must be connected to the packet switched network and further is implicit that the gateway is bidirectional since the information flows handled by the gateway include types of flows that require bidirectional communication such as voice communication and surfing on the World Wide Web, pointing Applicants' attention to col. 5, lines 37-51. Applicants respectfully disagree since, at the passages recited by the

Examiner to support these contentions, there is a broad ranging discussion of a network technology transferring data only according to one type of transfer mechanism either circuit switched or packet switched. Applicants respectfully contend that this recitation neither suggests, teaches or implies a gateway which is bidirectionally coupled to a data communication network as required in the instant claims, nor is there an explicit teaching of one gateway bidirectionally coupled to a data communication network as required, for example, in element three of claim 1.

Furthermore, Applicants respectfully submit that although they do not necessarily agree that Forslow discloses a mechanism for selecting individual ones of a plurality of quality of service modes for servicing different application requirements since Forslow discloses that each application requirement is assigned a quality of service mode and from this the Examiner concludes that to perform this function is, as broadly defined, a "controller", there is no suggestion, teaching or implication of a user terminal comprising a controller responsive to applications for selecting individual ones of a plurality of quality of service modes for servicing different application requirements as required in element four of, for example, claim 1.

Applicants respectfully submit that at col. 1, lines 32-36 of Roccanova U.S. 6,522,658 there is disclosed "Discriminating and routing data packets based on QoS requirements is of particular importance in satellite-based communication systems where orbital designs must accommodate the need for short round trip times required for voice data." Applicants respectfully submit, however, that Roccanova is directed to "A method is provided for discriminating and routing data packets in a satellite-based communication system (10), comprising the steps of: (a) receiving an input data stream from an application residing on a transmitting device (12); (b) selecting either a first spread spectrum code or a second spread spectrum code based on the quality of service (QOS) requirements associated with the first application; (c) applying the selected spread spectrum code to the input data stream, thereby generating a spread spectrum data stream; (d) transmitting the spread spectrum data stream from the transmitting device (12) to a network routing device (14); (e) correlating the spread spectrum data stream with the corresponding selected spread spectrum code to recover the original input data stream; and (f) routing the input data stream to either a low earth orbiting satellite (16) when the first spread spectrum code is used to recover the input data signal or to a geosynchronous orbiting satellite (18) when the second spread spectrum code is used to recover the input data signal."

Among other distinctions, Applicants respectfully submit that Roccanova is not concerned nor does it disclose at least one user terminal or a gateway bidirectionally coupled to a data communications network in combination with a controller responsive to

applications for selecting individual ones of a plurality of quality of service modes for servicing different application requirements as required in claim 1, for example. Furthermore, Applicants respectfully contend there is neither any suggestion, implication or teaching that Forslow, devoid of any mobile satellite telecommunication disclosure, may be combined with Rocanova which is directed to a method for discriminating and routing data packets in a satellite-based communication system which is not anywhere taught to be mobile in order to reject Applicants' instant claims.

Applicants respectfully contend and restate, as the Examiner admits, that Rocanova is not concerned, nor does it disclose, at least one user terminal or a gateway bidirectionally coupled to a data communications network in combination with a controller responsive to applications for selecting individual ones of a plurality of quality of service modes for servicing different application requirements. Applicants respectfully disagree with the Examiner, however, that this is why the Examiner has relied on Forslow to disclose these limitations since Forslow does not teach, suggest or imply at least one gateway bidirectionally coupled to a data communication network and a user terminal comprising a controller responsive to applications for selecting individual ones of a plurality of quality of service modes for servicing different application requirements as recited above and as set out in elements three and four of claim 1. Furthermore, Applicants respectfully contend that there is no motivation to combine Forslow '832, devoid of any mobile satellite telecommunications disclosure, with Rocanova '658 which is directed to a method for discriminating and routing data packets in a satellite-based communication system which is not anywhere taught to be mobile in order to reject Applicants' instant claims.

Applicants respectfully submit that this is not in any way overcome by the Examiner's contention that nonobviousness cannot be shown by attacking references individually where the rejections are based on combination of references, citing *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Furthermore, although Applicants do not necessarily agree that Forslow discloses that the invention can be used in a variety of mobile telecommunication systems, directing Applicants' attention to col. 8, lines 60-63, where the Examiner submits that satellite networks are well known mobile telecommunication systems, and furthermore that Rocanova teaches that it is important to discriminate and route packets based on QoS requirements in satellite-based communication systems, citing col. 1, lines 32-36, Applicants respectfully disagree that Rocanova suggests using a QoS system in combination with a satellite-based communication system and, therefore, the combination of Forslow and Rocanova fails to suggest the limitations of claims 1 and 14 as outlined in the rejection.

The Examiner goes on to state regarding claims 2 and 15, referring to claims 1 and 14, Forslow in view of Roccanova discloses that the user terminal operates to communicate a request for a selected one of said QoS modes at least to said gateway, and in response the system allocates resources to accommodate the requested QoS mode, directing Applicants' attention to Forslow col. 6, lines 3-15 and col. 6, lines 48-64.

Applicants respectfully contend that at col. 6, lines 3-15 and col. 6, lines 48-64 of Forslow there is taught, respectively, quality of service parameters specified by the application for an individual application flow are mapped to corresponding quality of service parameters for the selected one of the circuit-switched or packet-switched bearers. And at col. 6, lines 48-64 "The mobile station and a mobile network gateway node each include a mapper for mapping individual application flows to one of the circuit-switched network and the packet-switched network bearers depending on the quality of service requested for an individual application flow." Applicants respectfully disagree that there is taught, suggested or implied that the user terminal operates to communicate a request for a selected one of said QoS modes at least to said gateway in these recitations relied upon by the Examiner since both disclosures are devoid of any user terminal operation to communicate a request. Furthermore, claims 2 and 15 are patentably distinguishable over Forslow in view of Roccanova for the reasons recited above with regard to claims 1 and 14 which are hereby respectfully incorporated by reference.

Although Applicants do not necessarily agree that Forslow discloses that the gateway map flows according to QoS requirements, however it is the mobile terminal that contains the applications requiring particular QoS levels, as the Examiner contends, Applicants respectfully disagree that it is inherent that the mobile terminal communicates the QoS requirements in some manner to the gateway. Furthermore, Applicants respectfully disagree that this communication can be equated with a request, as contended by the Examiner, since this is no where taught, suggested or implied in Forslow at col. 6, lines 3-15 nor col. 6, lines 48-64.

Regarding claims 3 and 16, the Examiner refers to claims 1 and 14 stating Forslow in view of Roccanova suggests that a user is billed a greater amount for use of a QoS of higher quality, citing Forslow col. 1, lines 41-62 where Forslow discloses that higher QoS requirements mandate less efficient use of resources.

Applicants respectfully submit that at col. 1, lines 41-62 of Forslow there is disclosed "While bursty traffic can be transmit using a circuit-switched channel, such a transmission underutilizes that channel because there are likely large intervals between bursts when the channel is reserved but is not being used, there is no information to be transmit from or received by the user....However from a customer service view point, because a circuit-switched channel is not shared with other users, the user is essentially guaranteed a

"certain quality of service....Communication channels are therefore typically shared by many users. Another advantage is that in contrast to time-oriented charging applied for circuit-switched connections, packet-switched data services allow charging depending on the amount of data actually transmitted and on the quality of service of that transmission."

Applicants respectfully submit that charging is provided depending on the amount of data actually transmitted and on the quality of service of that transmission as opposed to a greater amount for the use of a QoS of higher quality as required in claim 3 alone and in any event claims 3 and 16 are seen to be patentably distinguishable over Forslow in view of Roccanova for the reasons recited above with regard to claims 1 and 14 which are hereby respectfully incorporated by reference.

Applicants respectfully submit that the Examiner's contentions regarding a pricing scheme which would result in a company charging only a nominal fee for a user who tied up an entire circuit but transmitted only a small amount of data, foregoing profits it would earn by allowing multiple customers to utilize the same circuit, that this suggests that a company charge according to QoS requirements such that a party who receives a higher QoS which is bandwidth inefficient is charged more for the privilege of wasting bandwidth by maintaining the higher QoS. Applicants respectfully submit that the Examiner's reasoning is nowhere supported by Forslow at col. 1, lines 41-62.

The Examiner goes on to state regarding claims 4 and 17, referring to claims 1 and 14, Forslow in view of Roccanova suggests that the QoS modes comprise a Highest Quality of Service mode, a Medium Quality of Service mode, a Best Available Quality of Service mode, citing Forslow col. 5, lines 1-10, and a Guaranteed Data Rate Packet Data Service mode, citing Forslow col. 1, lines 48-51.

Applicants respectfully submit that Forslow at col. 5, lines 1-10, there is disclosed "Generally, quality of service parameters can be characterized qualitatively in three services classes including deterministic (used for hard, real-time application), statistical (used for soft real-time applications), and best effort (everything else where no guarantees are made). Quantitative parameters may include throughput (such as the average data rate or peak data rate), reliability, delay, and jitter corresponding to the variation delay between a minimum and maximum delay time that a message experiences."

Applicants respectfully submit that neither at col. 5, lines 1-10 of Forslow relating to deterministic, statistical and best effort, in addition to the other disclosure relied upon by the Examiner at col. 1, lines 48-51 of Forslow relating to, from a customer service view point because a circuit-switched channel is not shared with other users, the user is essentially guaranteed a certain quality of service; this in no way teaches, discloses or implies the QoS modes comprising a highest quality of service mode, a medium quality of service mode, a best available quality of service mode, and a guaranteed data rate packet data service

mode. Notwithstanding this further distinction, Applicants respectfully submit that claims 4 and 17 have been shown to be patentably distinguishable over Forslow in view of Rocanova for those reasons recited above with regard to claims 1 and 14 which are hereby respectfully incorporated by reference.

The Examiner has further contended that Forslow discloses at least three classes of service: deterministic, statistical, and best effort. The Examiner goes on to submit that these classes equate to a highest QoS mode (deterministic), a medium QoS mode (statistical), and a best available QoS mode (best effort). Applicants respectfully submit that the deterministic, statistical and best effort as defined in Forslow at the recited passages relied upon by the Examiner is no way suggests, teaches or implies QoS modes comprising a highest quality of service, a medium quality of service, a best available quality of service, nor a guaranteed data rate packet data service mode as required by claims 4 and 17. The Examiner's statement that Forslow discloses transmitting information according to circuit-switching which equates to guaranteed data rate packet data service mode does little to overcome the deficiency with regard to guaranteed data rate packet data service mode as required by both claims 4 and 17.

The Examiner states regarding claims 5 and 18, referring to claims 1 and 14, Forslow in view of Rocanova discloses that the controller selects one of a circuit switched or a packet switched mode of operation, citing Forslow col. 5, lines 41-51 and col. 6, lines 48-54.

Applicants respectfully disagree, as the Examiner contends, that Forslow discloses selecting between circuit-switching and packet-switching requires that a mechanism be employed to select between circuit and packet switching, and the Examiner concludes that this mechanism is the controller as required in both claims 5 and 18. Applicants respectfully submit that in the passages recited by the Examiner at col. 5, lines 41-51 of Forslow and at col. 6, lines 48-54, there is no teaching, suggestion or implication of the controller as required in both claims 5 and 18.

The Examiner has rejected claims 6, 7, 19 and 20 under 35 U.S.C. 103(a) as being unpatentable over Forslow U.S. 6,608,832 in view of Rocanova U.S. 6,522,658 in further view of Wiedeman et al U.S. 5,655,005.

The Examiner states regarding claims 6 and 19, Forslow discloses a mobile telecommunications system and method comprising: at least one user terminal (col. 6, lines 48-54); at least one gateway bidirectionally coupled to a data communications network (col. 6, lines 60-64); and a processor responsive at least to stored information for selecting a path through said network to a destination gateway for routing a communication to or from said data communication network and said user terminal (col. 6, lines 7-10) where the resource reservation approach allows a terminal to select a particular path to

transmit the information, and for causing a description of said selected path to be transmitted from said user terminal to at least one node of the network (col. 6, lines 3-15 and col. 6, lines 48-64) where the terminal must inform the system of the selected path in order for the system to use that path.

The Examiner admits that Forslow does not expressly disclose that the mobile telecommunications system is mobile satellite telecommunications system which includes a constellation of satellites in earth orbit; however, the Examiner contends that Forslow does disclose that the invention can be used in a variety of mobile telecommunication systems, citing col. 8, lines 60-63. The Examiner contends that Rocanova teaches that it is important to discriminate and route packets based on QoS requirements in satellite-based communication systems since orbital designs must accommodate the need for short round trip times required for voice data, citing col. 1, lines 32-36 where the satellite communication system uses a constellation of satellites, citing col. 1, lines 37-60. Thus, according to the Examiner, it would have been obvious to one of ordinary skill in the art at the time of the invention to have the mobile telecommunications system be a mobile satellite telecommunications system, which includes a constellation of satellites in earth orbit, since it is important to discriminate and route packets based on QoS requirements in satellite-based communication systems.

Applicants respectfully contend, as recited above, that at col. 6, lines 48-54 of Forslow there is no where to be found at least one user terminal but applications running on a mobile station or on an external network entity such as an Internet service provider; at col. 6, lines 60-64 of Forslow there is not taught, suggested or implied a gateway bidirectionally coupled to a data communications network; at col. 6, lines 7-10 of Forslow there is neither taught, suggested or implied a processor responsive at least to stored information for selecting a path through said network to a destination gateway for routing communication to or from said data communication network and said user terminal; and finally at col. 6, lines 3-15 and col. 6, lines 48-64 of Forslow there is no where taught, suggested or implied satellite ephemeris information for selecting a path through said satellite constellation to a destination gateway for routing a communication to or from said data communication network and said user terminal and for causing a description of said selected path to be transmitted from said user terminal to at least one of said constellation of satellites as required in claims 6 and 19.

Furthermore, in Forslow at col. 8, lines 60-63 there is no where taught, suggested or implied a constellation of satellites in earth orbit but merely that Forslow does disclose that the invention can be used in a variety of mobile telecommunications systems.

In addition, in Rocanova at col. 1, lines 32-36 and in col. 1, lines 37-60 there is not taught a stored satellite ephemeris information for selecting a path through said satellite

constellation to a destination gateway for routing a communication to or from said data communication network and said user terminal and for causing a description of said selected path to be transmitted from said user terminal to at least one of said constellation of satellites as required in both claims 6 and 19.

Thus, Applicants respectfully disagree that it would have been obvious to one of ordinary skill in the art at the time of the invention to have the mobile telecommunications system be a mobile satellite telecommunications system which includes a constellation of satellites in earth orbit since it is important to discriminate and route packets based on QoS requirements in satellite-based communication systems.

The Examiner admits that Forslow in view of Rocanova does not expressly disclose that the processor is responsive at least to stored satellite ephemeris information for selecting a path through said satellite constellation. However, the Examiner contends that Wiedeman teaches in a satellite communication system using satellite ephemeris information in order to select a path through a satellite constellation when the satellites move relative to the end user, citing col. 3, lines 12-26. Thus, the Examiner concludes, it would have been obvious to one of ordinary skill in the art at the time of the invention to have the processor be responsive at least to stored satellite ephemeris information for selecting a path through said satellite constellation in order to select a path through a satellite constellation when the satellites move relative to the end user.

Applicants respectfully submit that in Wiedeman at col. 3, lines 12-26 there is merely stated "The system operates by effecting communication between a terrestrial wireless telephone end user transceiver apparatus and a terrestrial communications link via only a single relay...wherein the ground-based equipment makes the ultimate decision on linking based on satellite ephemeris information and end user information, and wherein the end user transceiver apparatus, the orbiting satellite and the terrestrial communications link cooperate to effect hand-off from a first orbiting satellite to a second orbiting satellite other than the first orbiting satellite." Applicants respectfully submit this is to be contrasted with ephemeris information for selecting a path through said satellite constellation to a destination gateway for routing a communication to or from said data communication network and said user terminal and for causing a description of said selected path to be transmitted from said user terminal to at least one of said constellation of satellites as required in claims 6 and 19 and not to effect hand-off from a first orbiting satellite to a second orbiting satellite as disclosed in the recited passages relied upon by the Examiner.

The Examiner states regarding claims 7 and 20, referring to claims 6 and 19, Forslow in view of Rocanova in further view of Wiedeman suggests that the processor is further responsive to stored gateway location information for selecting said path through said satellite constellation to said destination gateway, citing Forslow col. 6, lines 3-15 and

col. 6, lines 48-64 and Wiedeman col. 3, lines 12-26, where the location of the gateway must be known in order to complete a path through that gateway.

Applicants respectfully submit that in Forslow at col. 6, lines 3-15 there is merely recited, as previously discussed, the quality of service parameters specified by the application for an individual application flow are mapped to corresponding quality of service parameters for the selected one of the circuit-switched or packet-switched bearers....the header of each information packet when read determines whether a circuit-switched bearer or a packet-switched bearer carries that packet; and at col. 6, lines 48-64 there is merely disclosed, as previously recited, applications running on a mobile station or on an external network such as an Internet service provider may specify on an individual application flow basis a requested quality of service and select the type of bearer to be employed when transferring the application flow through the mobile communications network. Applicants respectfully submit that neither of these recitations in Forslow relied upon by the Examiner and further in Wiedeman at col. 3, lines 12-26 relating to hand-off is there taught, suggested or implied a processor further responsive to stored gateway location information for selecting said path through said satellite constellation to said destination gateway as required in both claims 7 and 20. Furthermore, claims 7 and 20 have been seen to be patentably distinguishable over Forslow in view of Rocanova, further in view of Wiedeman, for the reasons cited above with regard to claims 6 and 19 which reasons are hereby incorporated by reference.

Furthermore, Applicants respectfully disagree with the Examiner's contention that the satellite ephemeris data as indicated by Wiedeman discloses the location of the satellites and, since the fastest connection between two points on the earth through the satellite constellation will change depending on the location of the satellites, information pertaining to the location of the satellites is useful in determining how to route data through the constellation. Applicants respectfully disagree that this in any way suggests, teaches or implies that the processor is responsive at least to stored satellite ephermeris information for selecting a path through said satellite constellation. The passage relied upon in Wiedeman at col. 3, lines 12-26 relates to hand-off and does not teach, suggest or imply a processor further responsive to stored gateway location information for selecting said path through said satellite constellation to said destination gateway as required in both claims 7 and 20.

Applicants respectfully submit that in view of the above remarks all of the claims presently under prosecution have been shown to contain patentable subject matter and to be patentably distinguishable over Forslow '832, Rocanova '658 or Wiedeman '005, alone or in any combination. Accordingly, Applicants respectfully request that this application be

reviewed and reconsidered in view of the above remarks and amendments and that a Notice of Allowance be issued at an early date.

Respectfully submitted,



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